



University of St.Gallen

Center for Aviation and Space Competence

CFAC-HSG Annual report

2023



# Facts and Figures

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**2005**

Foundation

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**>100 Alumni**

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**10**

Employees

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**5**

Fellows (experts from the industry and academics)

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**1**

Book series (CFAC - The Aviation Series) with 21 editions

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**2023**

HSG Impact Award - Sustainable Aviation

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**3**

CFAC Books (Sustainable Aviation, Aviation Risk & Safety Management, Aviation Systems)

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**4**

Executive Programs



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# Introduction by the president

Dear All

Dear Alumni

Dear Supporters

Once again, we conclude a successful year with many exciting activities. It was the year with the highest revenue in history of the CFAC. Reason for this success is the good development in the "Space Area" of the Center. The Space for Business Program, which is offered together with two partner universities (RSM and NOVA) was a great success. One research project with the Swiss Space Office and one with ESA were completed and delivered with research results for academic publication activities.

Together with IATA, we organised the first DAS in Global Air Transport Management. Some of the modules were organised together with the CAS in Aviation Accountability, Safety and Compliance Management. This included the Singapore module in June, which provided insights into various companies in addition to theoretical knowledge.

Another highlight was receiving the HSG Impact Award for the publication "Sustainable Aviation" by Andreas Wittmer, Adrian Müller, Judith Walls and Alexander Stauch at the DIES Academicus. The publication makes a valuable contribution to sustainable aviation and shows one of our research priorities in the field of aviation.

The first Commercial Space Days were held in Lucerne in September together with the Swiss Aerospace Cluster. Over the event of two days, the NewSpace event welcomed more than 500 participants from over 200 organisations from space travel, industry and research. We managed to enable great discussions and transferred knowledge to the Space industry.

On the following pages you will get a deeper insight into our activities in the past business year as well as an outlook on the upcoming events in 2024.

Last but not least we would like to say THANK YOU to all of our numerous supporters and CFAC alumni for their valuable support during the year!

March 2024

Prof. Dr. Thomas Geiser  
President



CAS and DAS participants including CFAC Alumnis at SQUARE

## Impressions from our events and work at CFAC



Andreas Wittmer at ATRS Conference in Japan

Organisation Team of the Commercial Space Days





«Chocolate - A must on every Space Mission (at least on my missions).»

Claude Nicollier at the Commercial Space Days



Andreas Wittmer and Adrian Müller, HSG Impact Award for Sustainable Aviation

Core team of the Center for Aviation and Space Competence





# The CFAC-HSG at the University of St. Gallen

As one of Europe's leading business universities, the University of St.Gallen is globally recognized as a place for thought leadership on current economic, business and societal matters and for the development of talents able to integrate perspectives and act both entrepreneurially and responsibly.

## Mission

We provide scientific, applied and practice-oriented research as well as training and education for managers in systemic industries, governmental or non-profit organizations. We also serve as discussion partners or counterparts for experts and interested parties in the fields of aviation and space and related industries. By these activities we aim to help the aviation and space industry in its complex interrelated and heterogeneous fields of application.

## Vision

The CFAC is the number one independent university institution in Switzerland when it comes to research, trainings and executive education in the field of management, economics and law in the aviation and space and related industries.

## Values

independent, reflective, systemic,  
practice-oriented, collaborative

## The Center for Aviation and Space Competence (CFAC-HSG)

The Center for Aviation and Space Competence (CFAC-HSG) is an independent institution of the University of St.Gallen. The CFAC-HSG is administratively managed by the Institute for Systemic Management and Public Governance (IMP- HSG) and is led by Dr. Andreas Wittmer. It offers services as well as basic and advanced training courses in Aviation and Space and provides service projects, such as market research and studies, using the knowledge that has been generated through research, publications and the experience of our academic advisory board members, partners and our Managing Director and his Team.



# Organization

## Academic HSG-Partners

The HSG-Center for Aviation and Space Competence is supported by eight institutes. The Center's academic advisory board is made up of the full professors of the participating institutes.

### CFAC Advisory Board

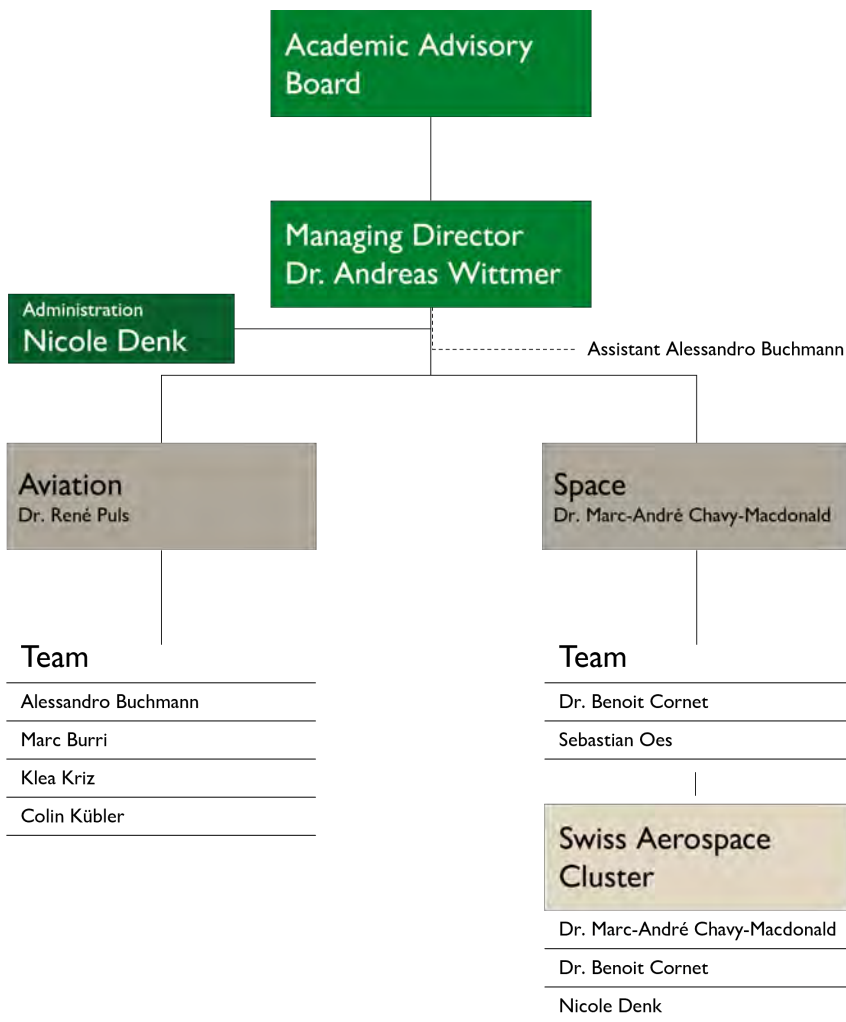
Prof. em. Dr. Thomas Geiser (President),	Institute for Jurisprudence and Legal Practice at HSG
Prof. Dr. Karl Frauendorfer	Institute for Corporate Research at HSG
Prof. Dr. Vivianna Fang He	Institute of Responsible Innovation at HSG
Prof. Dr. Thomas Friedli (ad interim)	Institute of Supply Chain Management at HSG
Prof. Dr. Christian Hildebrand	Institute of Behavioral Science and Technology at HSG
Prof. Dr. Christian Laesser	Institute for Systemic Management and Public Governance at HSG
Prof. Dr. Stefan Morkoetter	St. Gallen Institute of Management in Asia (Singapore)
Prof. em. Dr. Roland Müller	Representing FFAC
Prof. Dr. Winfried Ruigrok	Research Institute for International Management at HSG



# Organization

## Team

The team of the Center for Aviation and Space Competence is managed by Dr. Andreas Wittmer. The team works with its highly qualified participating institutes, enabling knowledge to be shared between separate institutes and skill areas in the field of Aviation and Space.



### Team



Wittmer Andreas Dr.  
Managing Director



Puls René Dr.  
Project Leader Aviation  
Deputy Director CFAC



Chavy-McDonald  
Marc, Dr.  
Project Leader Space



Cornet Benoit, Dr.  
Postdoctoral Researcher  
Space



Denk Nicole  
Administration, Program  
Manager CAS

All employees are involved in various projects as well as lectures. In addition to staff directly employed at CFAC-HSG, there are around 120 employees split among the other partner-institutes at the University of St.Gallen who can be appointed depending on their expertise for project works of the CFAC-HSG.

## External Partners

Additionally, the Center for Aviation of the Zurich University of applied Science in Winterthur (ZHAW), the Institute for Tourism and Leisure Research (ITF) of the University of Applied Sciences, Chur (HTW) are external partners with whom collaboration in projects as well as in teaching and advanced education at university/other tertiary educational level is being intensified. AeroEx, as an associate partner, is part of the executive education offer of the CFAC-HSG. The Aviation Research Center Switzerland (ARCS) is a partnership where swiss academic institutions with a focus on aviation and space collaborate. The CFAC is an active partner in this network.

The CFAC-HSG provides scientific research, training courses at university level as well as services for private companies and public institutions. The results of market research and consulting concentrate on the competences of the institutes involved which employ together around 120 scientific researchers. The goals of CFAC-HSG are supported by sponsors from industry as well as from public institutions.

### Aviation Research Center Switzerland (ARCS)

Partnership of University Research Centers in the field of Aviation integrating the following institutes: ZHAW School of Engineering's Center for Aviation (ZAV), University of St. Gallen's Center for Aviation Competence (CFAC), the Swiss Federal Institute of Technology in Lausanne (EPFL), ETH Zurich and University of Zurich (UZH).

### Center for Aviation, Zurich University of applied Science (ZAV-ZHAW)

The Center for Aviation combines various technologies, methods and areas of expertise in a bid to find sustainable solutions for the ever-increasing challenges of global mobility, to explore new approaches of making aviation even more efficient and safe. The results of our research are integrated into the Bachelor's degree program in Aviation.

### Institute for Tourism and Leisure Research, University of Applied Sciences (ITF-FHGR)

The Institute for Tourism and Leisure Research (ITF) of the University of Applied Sciences (FHGR) in Chur, Switzerland develops inter and transdisciplinary methods as well as incorporating knowledge into service and consulting projects relevant to practical applications. The combination of research results and methods with a practical approach to a problem and the close connection with teaching and executive education/advanced training are the main corner stones for success in the specific area of tourism.

### AeroEx GmbH

AeroEx GmbH is a Swiss-based company and offers a wide range of services with particular focus on the delivery of consultancy and support services to companies in the aviation industry. The key competences are seminars and workshops tailored individually to customers' needs. AeroEx GmbH provides high customer value through a quality expert team with know-how which has been gained over a long period.

## Fellows

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**Prof. Dr. Dominic Foray**  
EPFL, Economics and Innovation Management



**Joel Hencks**  
Managing Director AeroEx GmbH



**Dr. Claudio Noto**  
Airline Pilot



**Mark Roth**  
Founder and Partner Avi-MedConsulting GmbH and Captain/Examiner A380



**Dr. Raphael Widmer-Kaufmann**  
Lawyer and Notary

The five CFAC fellows are practitioners from the Industry with a strong scientific background that complement our team

«We conduct research in various areas of **aviation**. The main focus is on sustainable aviation, customer value, systemic management and business model innovation.»

«We conduct research in various areas of **space**. The main focus is on the new space economy, innovation and technology management and engineering economics.»

# Our Work

## Projects

The Center for Aviation and Space Competence carries out consulting projects on and in collaboration with the aviation and space industry. We do research in aviation and space, of course, but also on mobility in general.

A selection of our projects in the past year are mentioned in the following chart:

	Customer / Business Partner	Description
New Space, an Innovatization of the space sector - What lessons for public policy?	Swiss Space Office	This research dealt with the radical transformations taking place in the space sector and how public policy on innovation must readjust accordingly for sustainable positive change. It included interviews of Swiss space start-ups and policy recommendations for Switzerland
Benchmarking European NewSpace	European Space Agency ESA	This consisted in: (1) innovation econometric research to assess Europe's lag vs. e.g. the US; (2) data gathering via workshops etc. of >120 C-levels. We then (3) make policy recommendations to ESA to boost NewSpace innovation.
Airline Pilot Supply Research Project	Airline Pilot Directors Council APDC	An estimation of global demand for pilots is addressed. Factors and trends in the global supply demand for pilots are identified and actions for APDC members to increase the global supply and/or reduce the global demand of pilots are defined.
Sustainable Aviation Fuel in the business travel market	Swiss International Airlines	An analysis of the potential for buying Sustainable Aviation Fuel among Swiss Corporates was conducted. Interesting results along the willingness to pay for SAF by corporates for their business travel were found.

«We train and  
certify the  
Aviation and  
Space Leaders  
of tomorrow»

# Our Work

## Academic & Executive Education

The Center for Aviation and Space Competence offers various training programmes and events in the field of aviation and space. The center also supervises Bachelor's and Master's theses and doctoral dissertations.

### CAS in Aviation Accountability, Safety and Compliance Management

The CAS-ASCM develops high potential aviation managers into global aviation leaders by turning their aviation practice into capabilities for managing global aviation. It prepares participants to maintain, stream and improve insights about the aviation market, competition, customers, suppliers and regulations.

- Module 1: Aviation Systems and Accountabilities
- Module 2: International Responsible Leadership (Singapore)
- Module 3: Risk, Safety & Security Management
- Module 4: Auditing in Aviation

### Space for Business Program

The programme has been developed by three of Europe's renowned business schools in collaboration with the European Space Agency. The programme is aimed at space and non-space professionals (with at least several years of working experience) and entrepreneurs who want to grow their management skills and know-how, who want to understand how the space sectors and space assets offer new business opportunities and offers new business models, and who want to kickstart their career in the space sector.

- 6-Month programme
- 3 In-Class modules
- 50-60 hours per module
- Switzerland, Portugal and Netherland

### DAS in General Aviation Management (with IATA)

The diploma encompasses 12 courses, which will enable you to explore and analyze topics in-depth, ranging from aviation systems and revenue management to sustainability and change management. You will become a trusted leader by gaining greater knowledge on the global aviation industry as a whole and the crucial regulations and their impact on business strategies and operations. Frameworks for quality and safety management, as well as for auditing processes will help you and your companies to comply with these regulations.

- 1-2 years
- Diploma of Advanced Studies, 36 credits (ECTS)
- In-person/Online
- 12 courses
- English
- St. Gallen, Montreal & Singapore

### CFAC/FFAC Forum Risk, Safety and Liability in Aviation

Together with the Foundation for Aviation Competence (FFAC), the CFAC organises alternately, every two years, the Risk, Safety and Liability in Aviation Forum and the Airport Forum (15th November 2024).

### CAS in Sustainable Aviation Management (with IATA)

The CAS-SAM program offers a full range of modules to provide a comprehensive overview of the burning topic of environmental sustainability in aviation.

- Module 1 + Module 2: Environment and Sustainability
- Module 3: Responsible Leadership
- Module 4: Sustainable Aviation Fuels
- Module 5: Risk Management
- Module 6: Carbon Markets and Aviation

### HSG Master core elective: Aviation Systems - Managing the Aviation Value Chain

This course sensitizes students for "real-world" aviation problems and management aspects. The course provides the students with a broad understanding of the complexity of the aviation industry. An integrated part of the course is an airline business simulation, which allows the students to participate in a competitive real-world environment and transfer the theory into practice. Students learn to understand the system of aviation from different perspectives:

1. Politics
2. Economy
3. Society
4. Technology
5. Environment

Furthermore, students learn about the specifics of managing aviation companies and specifically managing airlines.



# Our Work

Bachelor- and Master Theses, Dissertations, CAS-ASCM and DAS-GATM Transfer Papers

<b>Bachelor</b>	
Gebhard Dominik	Die globale Zukunft des Ultra-Low-Cost Geschäftsmodells bei Airlines
Huber Valentin	Start-up acquisitions in the Space Industry
Infantes Nassim	Incentives to scale-up solar jet fuel production - Estimating public funding needs for the ReFuel EU Aviation
Ruggli Philipp	Strategies to push generation Z passengers to pay extra for sustainable aviation fuel
<b>Master</b>	
Balsamo Riccardo	The financial impact of Zurich Airport on the metropolitan Area
Beermann Robert	Passenger Drones as a new form of mobility - Exploring a potential business model for passenger transport by air taxi
Gutsch Dominik	Airport Expansion and Investment - A qualitative analyses of Fraport AG
Häggi Tobias	The impact of buy now, pay later on the purchasing behaviour of airline customers
Holenstein Lia	Low carbon travel mode choices - Nudging customers towards reducing personal air travel within Europe
Hoier Heinz Julian	Might air travel become a service for free in future?
Kessler Caroline	Global Space Governance - A contemporary critique - Challenges and recommendations in the era of commercialisation and privatisation
Kobler Joel	Changing customer preferences for longhaul leisure flights among Swiss travelers
Kloth Alexander	The global Airline - From Alliances to mergers and operating concepts of the future
Mettler Jennifer	Airline Cooperation Dysnergies - Negative effects of different cooperation types in the airline industry
Schmid Niculin	GreenControlling in the Aviation Industry
Weber Daniel	Convergence of airline business models - A passenger's perspective
<b>Dissertation</b>	
Müller Adrian	Decarbonizing Business Travel
<b>CAS-ASCM</b>	
Fusina Fabian	New Risk Management Approach for SWISS protection management
Habich Tamara	Gap analysis on Critical Elements regarding Swiss military aviation
Saugy Martial	Digital aircraft insurance - balancing act between fast and detailed risk assessment



University of St.Gallen

Center for Aviation Competence



# Our Work

## Presentations, Publications and Public Relation

The Center with Andreas Wittmer and its team was again present in various presentations, publications, newspapers, online platforms and social media and was able to transfer many insights from research into impacts to the society

### Presentations

*Gebler Marc & Wittmer Andreas*  
ATRS 26th World Conference  
(Kobe): The Market Value of Airline Sustainability Initiatives

*Müller Adrian & Stauch Alexander*  
Aiest Konferenz (Madrid): "Switching tracks: Guiding employees towards low-carbon business travel choices" (Aiest PHD Award)

### Publications

*Müller Adrian*  
Decarbonizing business travel: : A qualitative exploration of the (mis-) alignment between knowledge organizations' climate strategies and travel practices: Journal of Sustainable Tourism

### Working Paper

*Cornet Benoit, Chavy-Macdonald Marc-André, Foray Dominique*  
Defining innovatisation: The case of NewSpace and the changing space sector

### CFAC Books

- Sustainable Aviation (A Management Perspective), Springer Verlag
- Aviation Risk and Safety Management, Springer Verlag
- Aviation Systems, Springer Verlag

### Conferences

The CFAC was part of the:

- ATRS Conference in Kobe (Japan)
- Aiest Conference Madrid

### Media

**Wittmer Andreas**  
Toute un monde, January 16  
Et si le train et l'avion se donnaient la main pour réduire l'empreinte du voyage?

**Wittmer Andreas**  
SRF 1 / Tagesschau, January 26  
Reisebranche boomt - Hotelplan hat Umsatz mehr als verdoppelt

**Wittmer Andreas**  
SRF 1 / Radio SRF 3, May 3  
Die Fluggesellschaft Swiss kann erneut einen Gewinn verzeichnen

**Wittmer Andreas**  
Heute Online, May 9  
Chaos im Flugverkehr droht - das musst du jetzt wissen

**Wittmer Andreas**  
20min.ch, May 9  
Im Sommer droht ein riesiges Chaos im Flugverkehr

**Wittmer Andreas**  
tagblatt.ch / St. Galler Tagblatt, May 9  
Fliegen könnte wieder zum Luxusgut werden

### Wittmer Andreas

PublicNewsTime.com, June 5  
Passengers in Switzerland face flight disruption amid French air traffic strikes

### Puls René

ftmedien.ch, September 7  
Die kommerzielle Raumfahrt kommt nach Luzern

### Wittmer Andreas, Gebler Marc

Cockpit, September  
Investoren zahlen nicht für nachhaltigeren Luftverkehr

### Wittmer Andreas

Aero Revue, October 26  
Lehrgänge für Führungskräfte

### Wittmer Andreas

Cockpit, November 10  
Nachhaltige Luftfahrt - wo stehen wir?

### HSG Impact Award

The research project "Sustainable Aviation" of Dr. Andreas Wittmer, Adrian Müller, Prof. Dr. Judith Walls and Alexander Stauch won the HSG Impact Award 2023.



# CFAC Supporters and Alumnis

## Supporters

As an independent institution of the University of St Gallen, the CFAC-HSG focuses its academic research on relevant aviation topics. Thanks to the generosity of our supporters and partners, we were able to do research and contribute important insights to the academic debate and also transfer our knowledge directly to the industry.

### Supporters

- Foundation of Aviation Competence (FFAC)
- AviSwiss GmbH
- Kanton St. Gallen, Amt für Wirtschaft und Arbeit, Standortförderung
- Alexander Schönenberger

Some supporters directly support us. Many pay an annual amount to the Foundation of Aviation Competence, which is the supporting organisation of the CFAC-HSG.

### Benefits for Supporters

- CFAC News (Monitoring of Aviation Law, Literature and Judicative in Air Law, Literature in Aviation Management, Politics, Economics and Society in Aviation) with two editions per year.
- Academic works in the field of aviation can be written to requested topics by our supporters (Master theses or Dissertations which are advised at University of St.Gallen or Bern)
- Project works and applied research projects to requested topics in the field of aviation of supporters (Bachelor and Master level at the University of St.Gallen and at the ZHAW)
- Advisory opinion with special conditions (Opinion papers in the field of regulation or management in aviation for supporters with reduced hourly rates)
- Participation at Events with Aviation lectures and aviation forums with special conditions (free participation at gatherings, participation at forums with exchange of experience and Apéro with 10 % discount)
- Participation at our Executive Education programs with special benefits
- Access to our Aviation publications and information with login on our CFAC Supporters webpage.
- Books published by the CFAC and

of the CFAC Aviation Series can be bought with 30 % discount.

- Network of aviation specialists (relaxed exchange of know-how and meetings with direct contact with us)
- Fast and free legal advice about aviation issues (advise by our Professors of the CFAC for free, if an advise can be given by phone without research effort)
- Fast and free advice about aviation topics in the fields of Aviation Management, Aviation Political Issues, Aviation Economy, Air Law, Aviation Environment and Society, Aviation Logistics, Aviation Operation if an advise can be given by phone without research effort.

### Contact



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# Alumni



## CFAC Alumni

All participants of our executive education courses (DAS and CAS) automatically become CFAC Alumni. CFAC Alumni are regularly informed about the activities of the Center and are invited once a year to a networking dinner in St. Gallen. In addition, smaller events are organized by the alumni members.

Contact person and responsible for CFAC Alumni is: Raphael Widmer-Kaufmann ([raphael.widmer@unisg.ch](mailto:raphael.widmer@unisg.ch)).

## HSG Alumni Aviation and Space Club

The HSG Alumni Aviation and Space Club is a new club within the thriving HSG Alumni community. We aim to connect alumni and alumnae working and/or interested in the aviation and space industry by offering events organised by our members for members.

Contact person and responsible for HSG Alumni is: Christoph Siegrist and Andreas Wittmer ([www.hsgalumni.ch](http://www.hsgalumni.ch))

# Preview 2024

## Accountability, Safety and Compliance Management

Certificate of Advanced Studies (CAS)



**We train & certify the Aviation Leaders of tomorrow.**

**Module in St.Gallen**  
**January 08-13, 2024**  
«Accountable Aviation Management»

**September 3-6, 2024**  
«Safety & Security Management in Aviation»

**November 20-22, 2024**  
«Auditing in Aviation»

**Module in Singapore**  
**June 3-6, 2024**  
«Internat. Management & Leadership»

Information & Application:  
Executive Education  
[www.cfac.ch](http://www.cfac.ch)

4 MODULES  
17 DAYS  
ST. GALLEN  
SINGAPORE

## CAS in Aviation Accountability, Safety and Compliance Management

The CAS-ASCM develops high potential aviation managers into global aviation leaders by turning their aviation practice into capabilities for managing global aviation. It prepares participants to maintain, stream and improve insights about the aviation market, competition, customers, suppliers and regulations. Capacities are built with respect to challenges in accountable management, internal auditing, safety and security management and cross-cultural management.

## DAS in Global Air Transport Management

The Diploma of Advanced Studies is offered in cooperation between University of St. Gallen and International Air Transport Association (IATA). The program content is delivered by academic and industry leading lecturers from HSG and IATA.

## Space for Business Programm

Together with partner universities Nova (Lisbon), RSM (Rotterdam) and with support of the European Space Agency (ESA) we will start our third edition of our management executive program for managers in the space industry and managers aiming at entering the space industry. The CFAC will deliver one five days module in Switzerland, starting on 4th March 2024.

## CAS in Sustainable Aviation Management

This program offers a full range of courses meant to provide a comprehensive overview of the burning topic of environmental sustainability in Aviation. Next edition will start on 7 May 2024.

## CFAC/FFAC Airport Forum

The next Forum will take place on 15th November 2024 at Zurich Airport (Besucherraum). More information will follow on [cfac.ch](http://cfac.ch).

## Aviation & Space Symposium St. Gallen (3rd Edition)

**Save-the-Date: 10 and 11 September 2024**

The 3rd edition of the Aviation and Space Symposium St. Gallen will take place on 11 September 2024 at OLMA in Hall 9.0. For the 2nd time (in person), the CFAC invites the Aerospace communities to discuss current and upcoming trends in Aviation and Space, as well as showcasing innovations in each domain. The new foyer, exhibition and auditorium concept will enable more than 300 actors of Future Aviation, Advanced Air Mobility, Helicopters and VTOL, NewSpace Economy, Additive and Composite Manufacturing to get together, exchange and network. Industry thought leaders, senior experts and special guest such as COSPAR President Pascale Ehrenfreund, ESA astronauts Claude Nicollier and Ulrich Walter will provide insights and experiences into the future of the Aerospace sector.

## Contact/Publisher



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From insight  
to impact.